

WHAT IS CLAIMED:

1. A method of removing non-volatile solvent residue in a closed circuit processing system, said system including a chamber, a first fluid supply tank in communication with said chamber and a second fluid supply tank in communication with said chamber, said method comprising the steps of:

placing an object having an internal surface to be processed in a chamber;

connecting said object to a pressure-reducing device, said pressure-reducing device being adapted to draw into and over said internal surface of said object;

sealing said chamber;

evacuating non-condensable gasses from said chamber;

introducing a first fluid into said evacuated chamber from a first fluid supply tank to clean said object contained in said chamber;

activating said pressure-reducing device, thereby creating a negative gauge pressure on the internal surface of said object;

introducing a gas to said chamber causing said first fluid within said chamber into be drawn into and over the internal surface of said object thereby cleaning said internal surface of said object;

applying ultrasonic sound waves to said first fluid within said chamber to create ultrasonic vibration in the reduced pressure fluid on the internal surface of said object;

recovering and retaining said first fluid from said chamber whereby said chamber is returned to said evacuated condition;

directing a second fluid at a high velocity against the surface of said object to dislodge said non-volatile residue from the surface of said object;

recovering and retaining said second fluid from said chamber whereby said chamber is returned to said evacuated condition;

introducing a non-condensable gas to said chamber to return said chamber to atmospheric pressure; and

opening said chamber and removing said object.

2. The method of removing non-volatile residue from an object in claim 1, wherein said step of connecting said object to said pressure reducing device includes connecting said object to a compression fit gasket, said gasket becoming sealed when a negative gauge pressure is applied to said connected end of said object.

3. The method of removing non-volatile residue from an object in claim 1, wherein said step of connecting said object to said pressure reducing device includes connecting said object to a connector manifold to introduce said fluids directly to the internal surface of said object.

4. The method of removing non-volatile residue from an object in claim 1, wherein said step of applying ultrasonic sound waves includes applying said ultrasonic sound waves at varied pressures between normal atmospheric pressure and the vapor pressure of said fluid being subjected to said ultrasonic sound waves.